

Appl. No. 10/712,818
Amdt. dated August 13, 2007
Reply to Office Action of May 17, 2007

REMARKS

Claims 1-8 and 10-39 are pending. Claims 26, 29, 30, 32, 34 and 37 have been rejected under 35 U.S.C. §102 and Claims 1-6, 8, 11, 14-16, 18, 19, 21-23, 25, 27, 28, 38 and 39 have been rejected under 35 U.S.C. §103. Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36 are objected to. Claim 9 was cancelled in a previous response. By this reply, Claims 1 and 26 are amended and no claims are cancelled or added. No new matter has been added. Accordingly, Claims 1-8 and 10-39 remain for consideration.

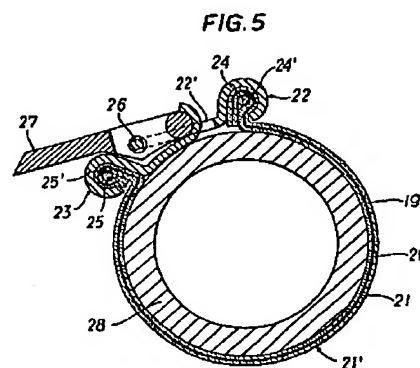
Without addressing the patentability of independent Claims 1 and 26 as previously presented in view of Krempl and merely to streamline prosecution of the present application, clarifying amendments have been made to Claims 1 and 26 to further recite subject matter which Applicants regard as their invention. Support for the clarifying amendments may be found in the original disclosure and, for example, in the Specification at least at page 9, line 23 to page 10, line 7; page 27, lines 24-30; and FIG. 5. Thus, no new matter is added. Applicants discussed these amendments with the Examiner in a telephone conference on May 2, 2007 in an effort to come to an agreement on allowable claims.

Claims 26, 29, 30, 32, 34, and 37 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,216,403 to Krempl et al. (hereinafter "Krempl").

In the Office Action, the Examiner alleges that Krempl teaches that it is "known to attach strain gauges on pipes to measure stretch of the pipe or pressure within the pipe." *Office Action at page 2*. The Examiner also alleges that Krempl's "piezoelectric sensor element 21 . . . embedded between two insulating tapes 19, 20 forming a flexible measuring strip" discloses the "strap" recited in Claim 26 of the present application. *Office Action at page 3*. The Examiner also alleges that Krempl's piezoelectric sensor element 21 discloses the "piezoelectric film material" recited in Claim 26.

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Unlike the invention recited in amended Claim 26 of the present application, Krempl does not disclose, teach, or suggest a strap having piezoelectric film attached thereto. Instead, Krempl discloses a "sensor element 21 . . . embedded between two insulating tapes 19, 20 forming a flexible measuring strip, the ends of which are clamped by means of strainer parts 22, 23" *Krempl at column 7, lines 40-44 and FIG. 5.* (Krempl's FIG. 5 is reproduced below for the convenience of the Examiner.)



Krempl's flexible measuring strip is simply wrapped around a pipe 28, opposing ends of which are clamped to hold the measuring strip on the pipe by strainer parts 22, 23. There is no strap whatsoever disclosed in Krempl. In fact, Krempl's flexible measuring strip functions as a strap so that the addition of a strap to the apparatus of Krempl would be duplicative and unnecessary. Accordingly, Krempl teaches away from use of a strap.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Since Krempl does not disclose a "strap" as is recited in independent Claim 26, it is respectfully submitted that Krempl can not anticipate that claim. For at least this reason, Claim 26 is allowable over Krempl. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the section 102 rejection of Claim 26.

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Since independent Claim 26, is deemed patentable over Krempf and Claims 29, 30, 32, 34 and 37 depend directly therefrom, they too are deemed patentable.

Claims 27, 28 and 38 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Krempf in view of U.S. Patent No. 4,304,126 to Yelke (hereinafter "Yelke"). Claims 27, 28 and 38 depend directly from and further limit independent Claim 26, that Applicants contend is in condition for allowance. Therefore, Claims 27, 28 and 38 are also deemed patentable. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of Claims 27, 28 and 38.

Claims 1, 2, 4-6, 8, 11, 14-16, 18, 19, 21-23 and 25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2003/0010126 to Romanet et al. (hereinafter "Romanet") in view Krempf. This rejection is respectfully disagreed with, and is traversed below.

In support of the rejection of Claim 1, the Examiner alleges that Romanet teaches most of the limitations of Claim 1. For example, the Examiner alleges that Romanet's "clamping collar" teaches the strap recited in Claim 1 and Romanet's "vibration sensor 38 is constituted by an accelerometer of piezoelectric type or an optical fiber or of piezoelectric films" teaches the piezoelectric film material recited in Claim 1. However, the Examiner states that Romanet is deficient in teaching "Piezoelectric film material having a pair of conductors disposed on opposing surfaces thereof whereby the piezoelectric film is attached to the strap. The Examiner then alleges that Krempf's "opposite surfaces of the film being in connection with electrically leading contact surfaces" satisfies the deficiency of Romanet.

The Examiner has mischaracterized Romanet by alleging that the accelerometers recited in Romanet constitute "strain sensors . . . comprising a piezoelectric film material," as recited in Claim 1 of the instant application. Accelerometers are not strain sensors. Accelerometers and strain sensors have entirely different functions. For example, an accelerometer is a device for measuring acceleration, whereas a strain gage is a device used to measure deformation or strain of an object.

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Moreover, Romanet discloses "pressure sensors 6 of the strain gage type, either resistive or optical fiber." *Romanet at paragraphs [0026]*. Strain gages of the resistive type and optical fiber type both function on entirely different operating principles than that of "strain sensors . . . comprising a piezoelectric film material," as recited in Claim 1. For example, in resistive strain gauges, the resistance of the conductor changes in relation to strain upon the conductor. Fiber optical strain gauges operate on the principle of positioning two optical fibers oppositely in order to transmit light from one fiber to the other and to provide a strain-dependent relative movement of the fibers, whereby the transmission of light is dependent on the strain. In contrast, "strain sensors . . . comprising a piezoelectric film material," generate an electrical signal proportional the degree that the material is mechanically deformed. This is directly opposite the manner in which resistive strain gages operate. Because Romanet teaches either resistive or optical fiber, and "either" means "one or the other of two," it follows that Romanet teaches away from "strain sensors . . . comprising a piezoelectric film material," as recited in Claim 1 of the current application.

Based on the foregoing, the references applied by the Examiner either alone, or in combination, do not teach or suggest the invention recited in claim 1. Moreover, because, as set forth above, Krempf teaches away from the invention claimed in the instant application, the reference cannot properly form part of a section 103 rejection. In addition, one skilled in the relevant art would not look to combine the teachings of Krempf with those of Romanet because there is no need to modify Krempf to add a redundant strap.

Even if somehow Romanet and Krempf are combined as suggested by the Examiner, the proposed combination would merely disclose strain gauges of either resistive or optical fiber types and a redundant strip. Moreover, since Krempf discloses no strap and Romanet teaches away from "strain sensors . . . comprising a piezoelectric film material," neither reference can possibly disclose a "strap which transfers the strain of the pipe to the piezoelectric film material" as recited in amended Claim 1. Therefore, even if one skilled in the art would somehow combine Romanet and Krempf, a point which is not admitted, the proposed combination would not expressly or implicitly disclose, teach, or suggest the subject matter of Claim 1.

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Consequently, because not all of the recitations of Claim 1 are taught by the cited references, individually or in combination, and because the Examiner has improperly combined Romanet and Krempl, Claim 1 is necessarily non-obvious, and Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 1.

Since independent Claim 1, as now written, is deemed patentable over Romanet and Krempl and Claims 2, 4-6, 8, 11, 14-16, 18, 19, 21-23 and 25 depend directly from and further limit independent Claim 1, these are also deemed patentable. Accordingly, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejections.

Claims 3, 4 and 39 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Romanet and Krempl in further view of Yelke. This rejection is respectfully disagreed with, and is traversed below.

Since independent Claim 1, as now written, is deemed patentable over Romanet and Krempl and Claims 3, 4 and 39 depend directly from and further limit independent Claim 1, Claims 3, 4 and 39 are also deemed patentable. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of Claims 3, 4 and 39.

The Examiner states that Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36 are objected to as being dependant upon a rejected base claim, but would be allowable if rewritten in independent form. Applicants appreciate the Examiner's finding of allowable subject matter in Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36. However, since Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36 depend directly from either Claim 1 or 26 and Claims 1 and 26 are deemed allowable, Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36 are also allowable. Accordingly, Applicants respectfully request that the objection to Claims 7, 10, 12, 13, 17, 20, 24, 31, 33, 35 and 36 be reconsidered and withdrawn.

Applicants believe that the foregoing remarks are fully responsive to the Office Action and that the claims herein are allowable. An early action to that effect is earnestly solicited.

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If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is invited to telephone the undersigned.

Applicants believe that no fees are due with the submission of this Amendment. If any charges are incurred with respect to this Amendment, they may be charged to Deposit Account No. 50-0260, Order No. CC-0675.

Respectfully submitted,

FERNALD ET AL.

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